

### REMARKS

Applicants and Applicants' representative wish to thank the Examiner for the courtesies extended during the Examiner Interview of March 29, 2005. Applicants request reconsideration and allowance of the above-identified application based on the amendments and remarks contained herein.

Claims 1 and 3-28 are pending in the application, wherein claims 1, 20, and 23-25 have been amended, and claims 27 and 28 have been added. Although claims 4-6 and 13 are currently withdrawn from consideration as being drawn to a non-elected species, Applicants respectfully request rejoinder of such claims upon the allowance of claim 1 from which these claims depend.

The Office Action rejects claims 1, 3, 7-12, 14-19, and 26 under 35 U.S.C. § 112, second paragraph, as being indefinite for the reasons set forth at page 2 of the Office Action. In response, Applicants have amended claim 1 in order to address each of the rejections, as discussed during the Examiner Interview. Accordingly, Applicants respectfully request reconsideration and withdrawal of this rejection.

The Office Action rejects claims 1, 3, 7-12 and 25 under 35 U.S.C. § 102(b) as anticipated by, or in the alternative, under 35 U.S.C. § 103 as obvious over, U.S. Patent No. 6,096,809 to Lorcks et al. The basis for this rejection are the blends of allegedly hard and soft polymers set forth in Examples 2 and 4 of Table 1. As discussed during the Examiner Interview, Applicants submit that Lorcks et al. neither teaches nor suggests a biodegradable composition that includes "a stiff biodegradable polymer portion comprised of at least one stiff synthetic thermoplastic biodegradable polymer having a glass transition temperature greater than about 10° C." and "included in an amount greater than about 55% by combined weight of the soft and stiff thermoplastic polymer portions".

Example 2 of Lorcks et al. includes 34.9% "TPS" (comprised of starch, sorbitol, and glycerol), 50% Bayer BAK 1095 polyesteramide, and 12% polycaprolactone. Because TPS and PCL both comprise "thermoplastic polymers" having a glass transition temperature less than about -10° C. they are both soft polymers. It therefore follows that the amount of Bayer BAK 1095 polyesteramide in the blend of Example 2 is significantly less than 55% by combined weight of the soft and stiff thermoplastic polymer portions. In order to emphasize this point, claim 1 has been amended in order to claim a soft thermoplastic portion comprised of at least one soft synthetic thermoplastic biodegradable polymer, and optionally thermoplastic starch, in order

for any thermoplastic starch (having a  $T_g < -10^\circ \text{C.}$ ) included in the biodegradable composition to be counted towards the soft thermoplastic polymer portion when comparing the relative quantities of the soft and stiff thermoplastic polymer portions.

Example 4, on the other hand, does not include any stiff thermoplastic polymer portion. That is because TPS, BASF ZK 242/108 copolyester of aliphatic diols and aliphatic/aromatic dicarboxylic acids, and PCL are all "soft" thermoplastic biodegradable polymers. As discussed in the present application, "TPS" formed by mixing and heating native starch in the presence of a high boiling plasticizer such as glycerine or sorbitol has little or no crystallinity and has a glass transition temperature below about  $-20^\circ \text{C.}$  Application, p. 30, line 25 – p. 31, line 8. PCL is described as having a glass transition temperature of  $-60^\circ \text{C.}$  Application, p. 27, line 18. The application further discusses aliphatic-aromatic copolyesters manufactured by BASF and Eastman having glass transition temperatures of  $-33^\circ \text{C.}$  Application, p. 27, lines 6 and 12. Indeed, the application further mentions U.S. Patent No. 5,817,721 to Warzelhan et al., which is owned by BASF, and which discloses aliphatic-aromatic copolyesters within the scope of the invention for use as a "soft" polymer. Warzelhan et al., which was also cited in the Office Action, discloses two examples of aliphatic-aromatic copolyesters, one of which has a glass transition temperature of  $-42^\circ \text{C.}$ , and the other having a glass transition temperature of  $-43^\circ \text{C.}$  Col. 14, lines 37 and 62. The present application refers to other patents assigned to BASF, all of which disclose "soft" biodegradable polymers having a glass transition temperature less than  $-10^\circ \text{C.}$  To the best of Applicants' knowledge, none of the BASF patents disclose a "stiff" biodegradable polymer having a glass transition temperature greater than about  $10^\circ \text{C.}$  Based on the foregoing evidence, Applicants submit that the BASF 2K 242/108 copolyester utilized in Example 4 is not a "stiff" biodegradable polymer, and even if it were, it is included in an amount that is significantly less than 55% by combined weight of the soft and stiff biodegradable polymers listed in Example 4.

In view of the foregoing, Applicants submit that claim 1, as amended, is neither anticipated by nor obvious over Lorcks et al., either alone or in combination with any other art of record. Dependent claims 3-19 and 26 are likewise patentable over Lorcks et al., either alone or in combination with any other art of record. In addition, such claims include additional limitations that may further distinguish over Lorcks et al. and any other art of record.

Claim 25, as previously presented, recited "thermoplastic starch" as an optional component, "with the proviso that the thermoplastic starch is substantially free of plasticizers" (emphasis added). Lorcks et al. neither teaches nor suggests biodegradable polymer blends that include thermoplastic starch that is substantially free of plasticizers. Instead, Lorcks et al. discloses "TPS" formed from a blend of starch and plasticizer such as glycerine and sorbitol. Col. 1, line 55 – col. 2, line 6; col. 3, lines 58-59; Table 1, Examples 1-7. In view of the foregoing, Applicants submit that claim 25 is neither anticipated by, nor obvious over, Lorcks et al., either alone or in combination with any other art of record. New dependent claims 27 and 28 are likewise believed to be patentable over Lorcks et al.

The Office Action rejects claims 1, 3, 7-12, and 14-26 under 35 U.S.C. § 102(e) as being anticipated by, or, in the alternative, under 35 U.S.C. § 103(a) as obvious over, U.S. Patent No. 6,573,340 to Khemani et al. In response, Applicants note that the present application and Khemani et al. have always been commonly assigned. Therefore, on this basis alone, Khemani et al. may not be cited under 35 U.S.C. § 103(a). Moreover, Per Just Andersen, Ph.D., has been deleted as a co-inventor of the Khemani et al. patent, as indicated by the documents filed more than two years ago with the PTO attached hereto at Exhibit "A". Because the present Application and Khemani et al. have the same inventive entity, Khemani et al. does not qualify as prior art under 35 U.S.C. § 102(e).

The Office Action rejects claims 14-19, 20-24, and 26 under 35 U.S.C. § 102(a) as being obvious over Lorcks et al. in view of U.S. Patent No. 5,817,721 to Warzelhan et al. In response, Applicants have amended claim 20 to specify that the claimed filler is a "solid particulate filler". As set forth in the present Application, starting at page 33, line 1, and continuing through page 40, line 16, there is a significant difference between "particulate" fillers and "fibers". In general, particulate fillers tend to decrease the tensile strength and increase stiffness of polymer blends to which they are added, particularly at high concentrations such as those recited in claim 20. Fibers, on the other hand, generally increase the strength and flexibility of polymer blends due to their much higher aspect ratio and flexibility. As such, Applicants submit that it would not be obvious to modify Lorcks et al. so as to replace the "cellulose fibers" disclosed therein at col. 4, lines 33-34, with the solid particulate fillers disclosed in Warzelhan et al. Accordingly, Applicants submit that claim 20 as amended is patentable over the combination of Lorcks et al.

and Warzelhan et al. Claims 14-19, 21-23 and 26 are likewise patentable for the reasons given above with respect to claims 1 and 20.

The Office Action rejects claims 1, 3, 7-12 and 14-26 under the judicially created doctrine of obviousness-type double patenting over claims of U.S. Patent No. 6,573,340 to Khemani et al. In response, Applicants are submitting a Terminal Disclaimer herewith in order to remove this rejection. Moreover, the Terminal Disclaimer further references copending U.S. application Serial No. 10/087,718, which names the same inventors as the above-identified Application, which was filed on the same date, and which now includes claims that might raise an obviousness-type double patenting issue. Therefore, out of an abundance of caution, the Terminal Disclaimer terminally disclaims the present Application over any patent that may be granted on said copending application Serial No. 10/087,718.

In view of the foregoing, Applicants believe that the claims as amended are in allowable form. In the event the Examiner finds any remaining impediment to the prompt allowance of the claims which may be overcome by Examiner Amendment, the Examiner is respectfully requested to initiate a telephonic interview with the undersigned attorney.

Dated this 6<sup>th</sup> day of April 2005.

Respectfully submitted,



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